Appendix G

Rocky Flats Sample Preparation Room Procedures

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Introduction

This procedure provides instruction for activities conducted in the sample preparation room of the Rocky Flats Westminster, Colorado, facility, and provides Rocky Flats-specific information to supplement the requirements of the following *Rocky Flats Site Operations Guide* (RFSOG) and LMS sections, manuals, and plans:

- RFSOG Section 9.0—Work Planning Processes
- RFSOG Section 10.0—Health and Safety/Training
- RFSOG Section 11.0—Emergencies and Corrective Action
- RFSOG Section 13.0—Regulatory Compliance
- RFSOG Section 14.0—Waste Management
- RFSOG Attachment F3—*Rocky Flats Site Chemical Management Plan*
- LMS/PLN/S04353, *Legacy Management CERCLA Sites Quality Assurance Project Plan*
- LMS/PLN/S04351, *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*
- LMS/POL/S04320, *Quality Assurance Manual*
  - Personnel Training and Qualification
  - Work Processes
  - Procurement
- LMS/POL/S04321, *Health and Safety Manual*
  - Fire Prevention and Protection
  - Personal Protective Equipment
  - Compressed Gas Cylinders
  - Job Safety Analysis
  - Hazard Communication Program
- LMS/POL/S04325, *Environmental Procedures Catalog*
  - Chain-of-Custody Control
  - Physical Security of Samples
- LMS/POL/S04326, *Comprehensive Emergency Management System*
- LMS/POL/S04328, *Integrated Safety Management System Description with Embedded Worker Safety and Health Program*
  - Appendix A, General Approach to Worker Safety and Health Functional Areas
- LMS/POL/S04329, *Environmental Protection Manual*
  - Chemical Management Program
- LMS/POL/S04334, *Procurement Manual*
  - Preparation and Review of Purchase Requisitions

General Operating Rules

Periodic, routine facility health and safety inspections are conducted and documented in accordance with the RFSOG. In addition to specific standard operating procedures, the following general requirements will be met when any sample preparation activities are being conducted:

- Routes of emergency egress will be clearly indicated and unobstructed.
- All fire extinguishers will remain functional and accessible. (Fire extinguishers will be stored, inspected, and serviced as required by the corresponding procedure.)
- Access to the sample preparation room will be restricted to authorized personnel only.
- Personal protective equipment will be used as required by the Job Safety Analysis (JSA), to prevent and mitigate any possible skin or eye contact with chemicals.
- Eye wash station will be operating properly. Monthly inspections will be conducted and documented. Remove the protective caps from the faucets and run the water for several seconds.
- Smoking, food, and beverages are prohibited in the room at all times. This includes chewing gum, mints, and other similar substances.
- Good housekeeping practices will be followed and countertops and work benches will be maintained clean, neat, and orderly.
- Incidental spills will be cleaned up immediately and properly.
- If a significant spill or leak occurs, the room will be evacuated immediately and the emergency response plan for the Rocky Flats Chemical Management Plan will be instituted.
- No manufacturer's label will be removed or defaced from the original container.
- Equipment that is damaged or malfunctioning will not be used, particularly chipped glassware.
- Pipetting by mouth is strictly prohibited.
- Chemicals will be procured, managed, and disposed of according to the Rocky Flats Chemical Management Plan.
- All personnel will wash their hands prior to leaving the room.

Refrigerators

The refrigerators in the sample preparation room are used to store samples and blue ice only. Chemicals, food, and drinks are not allowed to be stored in them. They will be maintained at 4 °C ± 2 °C while samples are being stored in them. Thermometers used to monitor the refrigerators will be checked against a NIST-certified thermometer on a monthly basis and documented. Refrigerators must be locked if samples without custody seals are stored in the refrigerators.

Refrigerators that are not in good working order will be locked out/tagged out and removed.

Sample Preservation

Sample containers used for organic and inorganic analysis will be pre-cleaned to the U.S. Environmental Protection Agency level 1 standard and have a Certificate of Analysis with an associated lot number. Sample containers will be preserved before sampling in accordance with Table 3−2 of LMS/PLN/S04351, *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*, specific directed laboratory requests, or specific project direction. Preserved sample containers will be securely placed in an appropriate U.S. Department of Transportation (DOT) conveyance in an upright position for transport.

Sample Management and Shipping

Samples will be collected, processed, decontaminated, and transported to the sample preparation room in accordance with the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites.*

Physical Security of Samples

The sampler will maintain physical security of the samples in accordance with LMS/POL/S04325, *Environmental Procedures Catalog*. Custody will be maintained either by having custody seals on each sample or storing the samples in a locked area.

Individual custody seals will be placed on each sample if they are to be shipped via a carrier.

The sampler will complete the chain-of-custody record in accordance with the *Environmental Procedures Catalog,* GT-3, and the chain-of-custody will accompany the samples until they are received by the laboratory.

Sample Packaging

Soil and water samples from sites at Rocky Flats with historical or processed knowledge have been determined not to be “hazardous materials” as defined in DOT Regulations, 49 CFR 171.8 and the International Air Transport Association (IATA) Dangerous Goods Regulations (DGRs).

Sampling and analysis procedures require the addition of certain chemicals to water samples for preservation. Based on process knowledge, water samples preserved in accordance with these procedures are also not DOT or IATA regulated hazardous materials. However, certain volumes of some of these chemicals may be DOT or IATA regulated hazardous materials in reagent form prior to mixing with water samples. Thus, when transported as reagents, limitations may apply to ensure they are not DOT or IATA regulated hazardous materials.

Samples from new sites must be evaluated to determine if there is a hazardous material Hazard Class association to the shipment as required by the 49 CFR, Title 172.101 table and any applicable IATA DGRs.

If radiological and industrial hygiene monitoring that may be required by the JSA or observation by persons performing sampling or preparation activities indicates that a sample or samples may contain analyte concentrations significantly above process knowledge characterization data, the

samples will not be shipped until an evaluation by Health and Safety and/or Environmental Compliance staff confirms the status of the sample(s) as non-DOT hazardous materials and/or not posing a health and safety concern. If the evaluation concludes that the sample(s) are hazardous materials, a certified shipper will be engaged to perform the shipping in accordance with the DOT and IATA DRG requirements.

Coolers will be used to package the samples but other packaging that meets the DOT conveyance specifications can be used if necessary.

Sample containers will be individually bagged and sealed in Ziploc bags. Glass containers that are shipped will be bubble wrapped to prevent breakage during transport. The samples will then be placed in an internal large plastic bag to provide secondary containment. Sample containers will be placed in the package in an upright position except vials for volatile organic compound analysis. These vials will be placed in an inverted position.

If 4 °C ± 2 °C preservation is required, then a sufficient amount of Blue Ice packs, or equivalent is added to the package to maintain preservation temperature through laboratory receipt. An adequate amount of absorbent is also added to the package to ensure that the contents will not leak through the outer packaging.

A minimum amount of compatible cushioning is added to the package to minimize the potential for shifting and damage to the samples during transport.

The signed and dated chain-of-custody and any other documents is placed in separate Ziploc bag and placed in the top of the package. The package is then sealed with strapping tape.

The package is then labeled in accordance with any applicable 49 CFR, Titles 171 through 178 with a minimum labeling of:

- “This Side Up” with arrows and “Fragile” labels on all four sides.
- “This Side Up” without arrows on the top.
- “Contractor for the United States Department of Energy” and “Environmental Samples” labels are also placed on the top.
- “Heavy Weight” placed on two opposite sides of the package if it is over 65 pounds.

Signed and dated custody seals are then placed on the package lid at two locations.

Excess Sample Disposal

Disposal of excess samples will be in accordance with the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites,* Rocky Flats Program Directive RF-2006-03.

Excess samples that have been preserved with chemicals will be neutralized before disposal.

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